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At Napa Junior College (California), to test the relationship between college attendance and personality change, 100 volunteers were measured in their first year by the STEP Reading Exam and the ACE Psychological Exam. California Psychological Inventory (CPI) showed a significant range in personality traits from high to low ability students. The values (measured by the Allport, Vernon, Lindzey Scale) were compared for the Napa students and a nationwide sample. The three groups of Napa students were tested in September and May for changes in personality and performance. Of six hypotheses, four were rejected and two were inconclusive. The general findings were: (1) Napa students are comparable in performance to entering freshmen at other institutions; (2) diversity within the college ranges over 67 percentile points on the ACE Exam; (3) there is great diversity of performance on Authority and CPI scales among the three ability groups; (4) by the same scales, there were significant changes in personality between September and May; and (5) there were significant changes in performance on the STEP Reading Exam among low-ability students. A more intensive study should be made of non-cognitive changes during the college years, for, although they seem to have no value as academic predictors, they are central to the process of education. Non-intellective factors, as opposed to academic, obviously have more influence and impact on both personality and performance than most educators are aware of. (HH)

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Thomas F. MacMillan

May 29, 1967

Student Characteristics and Change at Napa Junior College

I. Introduction

Nevitt Sanford presents a picture of the entering freshman in many institutions of higher education.[1] In content, this picture presents the freshman at a stage of development characterized by dynamism and fluidity; being a freshman is merely an historical accident in the process of the individual's becoming. It is a complicated analysis indeed that would be able to touch upon all of the dimensions of change for the entering college student. So many factors are involved: (1) the nature of his personality at the time of entrance - his needs and defenses, his patterns of relating himself to others; (2) the nature of his encounters with the sub-cultures on the campus - his identification with and use of various groups of students to reinforce or change his patterns of being; (3) the nature of his encounters with non-academic, non-personal aspects of campus life - his living arrangements, the architecture of the campus, the availability of cultural resources, the availability of adequate study facilities; (4) the nature of his academic encounters - his selection of classes, professors, books, the pattern of a college major or minor, the patterns and habits exhibited by teachers and students in his classes. Because of the complexity of these variables, any description of the developmental status of the entering freshman must needs use the verb 'become'. As many studies have shown, the only certainty about the entering freshman is that he is in the process of 'becoming;' what he will become will be a function of all of the complex factors listed here, as well as others that may have been omitted.

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[1] R.N. Sanford, "The Developmental Status of the Entering Freshman," in R.N. Sanford, ed., The American College (New York: John Wiley, 1962).

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As authors have considered the description of student characteristics and the 'impact' of college on students, little attention has been given to a rather recent arrival on the scene of American higher education; the junior college. Although the junior college in California has assumed the lion's share of responsibility for education at the freshman and sophomore levels, with nearly 40 per cent of all full-time college students and 70 per cent of the lower division students in California in junior colleges, too little is known about the characteristics of students in these institutions.

For the junior college student who appears at the 'open door' as an expectant freshman, the transition from high school to college may not be experienced as having much impact at all, especially when the typical junior college freshman is most likely to remain at home, following the same patterns of life, with the same people, in the same ways that he always has.

It is especially important for junior colleges to be aware of the 'developmental' status of the students who enter, since, in a way not characteristic of other segments of higher education, the students have the power to determine what the college shall become. This fact has been expressed by Burton R. Clark, in his analysis of the junior college based on an intensive study at San Jose City College:

> For San Jose and the State as a whole, these student prerogatives mean that the public junior college has non-selected student bodies, the individual student being entitled to an unrestricted choice of programs within the wide limits of a comprehensive school. In effect, the student constituency of a junior college is entitled to determine what the college will emphasize.[2]

Because of the fact that junior colleges profess a comprehensive purpose of educating all who are educable, who are over 18, or who are high school graduates, it seems a virtual necessity that there be continuing and comprehensive analyses made of the

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[2]Burton R. Clark, The Open Door College (New York: McGraw-Hill; 1960) p. 165

student characteristics of the junior college; ultimately, it is hoped, the administration, board, faculty, and counseling and guidance staff will be able to plan with a fuller knowledge of the clientele for whom the college is designed. Given the fact that there will be changes in the student, and that the student has the power to determine the course of his change, it would seem a truism to insist that the change be a cooperative effort between college and constituents.

Paul Lazarsfield has made the point that is being suggested here in a clear and complete way:

> If we know that students on the average undergo changes while in college - indeed, if they can be shown to change in certain ways <u>because</u> of college - what was it in their college experience which actually made them change? A college is in reality a complex social system with many parts which act upon one another. There are classes and lectures, but there are also friendship groups and fraternities which may support or oppose their influence. Then there are informal contacts with the faculty, and the mere presence of the faculty as models and examples; there is reading; there is the experience of living on one's own; there is exposure to other people's styles of life and taste; there are organized student movements; there are ties to home and ties to anticipated future jobs; there is the response of the local community to the college.[3]

One place to begin the task of making sense of the college to the student is to know more about the characteristics of that student, or of the 'typical' groups of students attending the junior college.

Such a task has been begun at Napa Junior College, and it is the purpose of this brief report to make clear what the results of this analysis of student characteristics has yielded to date. Basically, it is the assumption of this writer that an intelligent and systematic process of self-evaluation is central to the continuing process of decision making for junior college faculties, counseling staffs, and administrators. As a corollary, one might insist that such self evaluation be more than an academic exercise, for on the basis of adequate

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[3] Paul Lazarsfield, "Foreward" in Allen H. Barton, <u>Studying the Effects of College Education</u> (New Haven: The Edward W. Hazen Foundation, 1959) p. 9.

institutional research rests the decisions for re-creating the college environment to meet the needs of the students, and the purposes of the institution.

One final remark, taken from George Stern:

> An environment must be suited to the species: if it isn't, the organisms either die, or go elsewhere. But what <u>is</u> an optimal environment - one that satisfies, or one that stimulates? While it may be true that pearls come from aggravated oysters, you can only get milk from contented cows. Pearls and milk each have their uses, but it would be a pointless exercise in freedom to insist on milking oysters. The characteristics of the student and of the educational objectives must both be employed as guides in the design of maximally effective environments for learning. [4]

What follows is a description and analysis of a sample of one hundred students who entered Napa Junior College in the Fall semester, 1966. This study is conceived to be the beginning of a series of more adequate definitions of the function of the College, as measured in terms of the needs, demands, abilities, and values of the students.

II. Review of Related Research

Perhaps the pioneering study of student characteristics in higher education was that conducted nearly thirty years ago by Learned and Wood[1]. In this study, identical achievement tests were given to large samples of college seniors, sophomores, and high school seniors. At the time of graduation, the average scores for compared college senior classes varied as much as one and one-half standard deviations (40 per centile points). As well as indicating the possible diversity among institutions, the Learned and Wood study raised questions on the diversity of students within any given institution. One of the most startling results of this investigation was that fact that over one-fourth of all college seniors made scores below the sophomore level, and nearly ten per cent did less well than high school seniors who were administered the same test. The importance of the study was elaborated by the general conclusion that "school status, as defined by time spent and courses passed in school or college, has (no) necessary relation to a definite body of ideas understood and available as a result of 'education'".[2]

A more recent study, conducted by John G. Darley at the Center for the Study of Higher Education in 1962,[3] seems to illustrate again the extreme range of abilities among institutions of higher education. Darley found that, of those who enter college, "25 to 30 per cent are drawn from the bottom half of high school graduating classes; conversely, 40 to 50 per cent of those in the top quarter of their graduating classes do not go on to college."[4] In Darley's study, test scores on the ACE Psychological Examination were compared for entering freshmen in 200

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[1]Learned, W.S. and B.D. Wood, The Student and His Knowledge (New York: The Carnegie Foundation for the Advancement of Teaching, 1938)

[2]Ibid., p.4.

[3]John G. Darley, Promise and Performance: A Study of Ability and Achievement in Higher Education (Berkeley: Center for the Study of Higher Education, 1962)

[4]Ibid., p. 9.

institutions, with the result that "the lowest had a mean score of 37.5, and the highest of 142."[5] For a specific comparison of Darley's data with a junior college population, consider the data offered by Leland Medsker: among transfer and terminal students in 13 California junior colleges, the Mean ACE score was 93, with transfer men achieving 97 and terminal men in technical subjects achieving 81.[6] In general, one might conclude that the typical junior college student in California seems to have an academic aptitude that is similar to the four year college student represented in Darley's study.

A more recent analysis of academic potential among junior college students was made by Donald P. Hoyt and Leo Munday.[7] Using ACT-Composite scores for students in 85 junior colleges, these researchers compared academic potential among the junior college students with that for students in 205 four-year colleges. Generally, the findings seem to contradict those of Medsker and Darley that academic potential among junior college students is roughly comparable to that of their four-year college counterparts. The ACT report concludes that "in overall academic potential, junior college students in this study averaged about one-half a standard deviation below four-year college freshmen; the average junior college freshman would rank at about the 30th percentile of the four-year college group."[8] On the subject of diversity within institutions, the ACT report had this to say:

> While diversity among junior colleges was considerable, diversity within these colleges was even more noteworthy. This study provided empirical support to the commonly held belief that junior colleges must contend with the entire range of academic talent -- from the most gifted to the student of borderline intelligence. To provide academic programs which are appropriately stimulating to students of all academic levels is an immense challenge.[9]

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[5] Ibid., p. 25.

[6] Leland Medsker, The Junior College: Progress and Prospect (New York: McGraw-Hill Book Co., Inc., 1960) p. 34.

[7] Academic Description and Prediction in Junior Colleges (ACT Research Reports, No. 10, February, 1966)

[8] Ibid., p. 14

[9] Ibid., p. 15

In summary, it seems evident that across the United States, comparisons of the academic aptitude of junior college freshmen with four-year college freshmen yields contradictory results. From one point of view, considering the range of ability of entering students reported by Darley, the two-year college freshman is probably more able than a substantial population of four-year college freshmen. Darley indicates that the 'typical' junior college freshman is more able than approximately 60 per cent of his national sample, while the ACT report suggests that the typical junior college freshman seems to compare with the four-year freshman at about the 30th per centile. The point is made clearly, however, that there is great diversity among and within junior colleges: the definitive study of ability in junior colleges has yet to be written, but some value may yet be gained by an investigation of specific populations in junior colleges.

On the issue of college impact on "non-intellective" functions, there is a long history of research in four-year institutions. The recent studies have been stimulated, perhaps, by the 1954 publication of Jacob's analysis, Changing Values in College.[10] This review of published and unpublished research which dealt directly with personality changes and higher education was sponsored by the Hazen Foundation, and contained a provocative interpretation of the research available at that time. Jacob concluded that there are no significant changes in student values (attitudes, beliefs, opinions, values, and personality test scores results are all referred to by Jacob as 'values') which can be attributed to the nature of the college curriculum, any particular general education offerings, any particular instructional methods, training of instructors, or educational materials. He further concludes that:

> The main overall effect of higher education upon student values is to bring about general acceptance of a body of standards and attitudes characteristic

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[10] P. Jacob, Changing Values in College (New York: Harper and Bros., 1957)

> of college-bred men and women in the American community. There is more homogeneity and greater consistency of values among students at the end of their four years than when they began. 11.

Commenting on changes in the dogmatism, permissive attitudes in human relationships, and critical thinking ability of the samples, Jacob remarked that "college does make a difference - but not a very fundamental one for most students."[12]

Stern, Stein, and Bloom,[13] in a study reported in 1956, found that they could identify and isolate groups of students with respect to sociological, psychological, and emotional characteristics. The homogenous groups they discovered among the 900 students sampled were labeled "stereopaths" "nonstereopaths" and "rationals." In determining that there were sixteen per cent stereopaths in their sample, the authors suggest that they would probably find a large per cent of such students at other colleges and universities. The characteristics they attributed to stereopaths were very similar to those found in the California study of the Authoritarian Personality.[14] Briefly, these characteristics are:

> 1. Deference to authority figures, wish to remain in the parental home, less nurturent to youth, less interest in interpersonal activities.
> 2. Inhibited expression of feeling, preference for orderliness and control, dislike for sentient experiences and fearful of authority.
> 3. Rejection of emotional and aesthetic expressions in education as well as of analysis of social and political processes. 15.

The findings of Stern, et.al. are echoed and elaborated by research reported by Sanford in The American College. One of Sanford's concerns in his description of

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11 Jacob, op. cit., p. 6.

12 Ibid., p. 38.

13 Stern, G., M. Stein, and B. Bloom, Methods in Personality Assessment (Glencoe: The Free Press, 1956).

14 Adorno, T. W., Fenkel-Brunswick, G. J. Levenson, and B. N. Sanford, The Authoritarian Personality (New York York: Harper and Bros., 1950).

15 cited in an unpublished doctoral dissertation by H. Dale Tillery (Berkeley, 1961, p. 38).

16 R. N. Sanford, "The Developmental Status of the Entering Freshman," in R. N. Sanford, ed., The American College (New York: John Wiley, 1962).

the "developmental status" of the freshman is the level of authoritarianism in the personality of the young person entering college. He speaks of characteristic ways in which the authoritarian trend manifests itself: "in stereotyped thinking, intolerance of ambiguity, punitive morality, submissiveness toward the powerful and dominance toward the weak, conventionality, anti-intellectualism, hostility toward people perceived as different from oneself."[17] The role of the college, in Sanford' view, is in part to enable the student to internalize new value structures, rather than merely imitating patterns of behavior he has learned by observing his own family ot immediate social contacts: it is, in part, to allow the student freedom to extend his range of conscious control over himself, and to become more tolerant of the needs and values of others; it is, centrally, to allow the student to progres to a level of personal development characterized by a high degree of differentiation and integration of the personality. In Sanford's view, the college can accomplish its purpose because:

> The student is almost bound to encounter and take seriously values and roles that are different from some that he has taken for granted; he is thus forced to make conscious choices and to take the first steps toward building a value system of his own. Again, when he is free of the expectations of family and community he is able to try new modes of behavior, stimulate new kinds of perceptions of himself and other people, and thus to expand his personality by trial and error along lines that in the long run will be in keeping with his fundamental inclinations. 18

So for Sanford, one key to the accomplishment of 'impact' on the college student is the suspension of modes of behavior that conform to the models and pressures of 'family and community.' The question is indeed moot whether such a suspension of models and pressures can be accomplished in a junior college, where the great majority of students remain in the total environment that has supported and nurtured them for so many years. Reisman[19] has argued that such "twilight colleges" are not

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[17] Ibid., p. 261.

[18] Sanford, op.cit., p. 267.

[19] D. Reisman, Constraint and Variety in American Education (New York: Doubleday Anchor, 1958).

likely to provide an environment that will support change in the direction suggested by Sanford, and there is empricial evidence to support this conviction, as a study by Plant and Telford, to be cited below, will illustrate.

Webster, Freedman, and Heist[20] have written a comprehensive review of available studies on personality change among college students in The American College. In addition to the review, the authors have provided a discussion of problems inherent in such investigations. In their summary of available research, Webster, et.al. state:

> In sum research on attitudes and values carried out prior to the end of World War II showed that, in general, students in colleges changed in the direction of greater liberalism and sophistication in their political, social, and religious outlooks. There was also evidence of broadening interests during the college years. 21.

As one reads the review of studies reported in The American College, it is hard to justify some of the conclusions reached by Jacob in Changing Values in Colleges. Contrary to Jacob's judgment, it does seem that the majority of studies verify changes in attitudes, beliefs, interests, or values of college students while in college.

Perhaps the best comment on the problem of assessing change in junior college students is the monograph published by Walter Plant and Charles Telford[22]. Using selected scales from the California Psychological Inventory, the Rokeach Dogmatism Scale, and the Allport, Vernon, Lindzey Study of Values, the authors tested some 4500 prospective or newly enrolled junior college freshmen. Two years later, the group was retested, with as many subjects as possible being evaluated on the second testing. Significantly, the Plant and Telford study made use of one criticism of

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[20] Webster, H. M. B. Freedman and P. Heist, "Personality Changes in College Students" in Sanford, ed. The American College, op. cit.

[21] Ibid., p. 824.

[22] Walter T. Plant and Charles W. Telford, Changes in Personality for Groups Completing Different Amounts of College Over Two Years (Genetic Psychology Monographs, No. 74, 1966).

the Jacob study provided by Barton[23] and made use of a comperison group of students who intended to enroll in college but failed to do so. In this way, the changes among college students attending for various lengths of time during the two year period could be compared with changes among young people who did not enroll in college. Summarizing their conclusions, the authors stated:

> All other investogators of "college impact" have reported measured non-intellectual changes associated with the collegiate experience, and most have attributed the changes to college experience. Had only those subjects completing four semesters of junior college enrollment during the two-year period of this study been included, the authors of this study would have reported much the same finding as have others. Since subjects having under three or four semesters of junior college enrollment and subjects with no college enrollment during the two years were encluded, and changes for these subjects were found to be similar to the changes found for the "two-year" groups, it is felt that the whole issue of "college impact" has been called into question. Within the limits of the data and the study design, it has been concluded that many of the changes attributed by others to thecollegiate experience may be no more than developmental changes underway in young people who aspire to college whether or not they attend. 23.

Because of the importance of this study as a critique of design, as well as its specific applications to the junior college, some of the specific findings may be elevated for examination.

The authors stated their hypotheses in null-hypothesis form, so that one hypothesis tested was; "there are no signigicant differences between 1960 and 1962 means on the Sociability, Self-Control, Achievement via Independence, Intellectual Efficiency, or Responsibility scales of the CPI." For each of the six sex and educational attainment groupings, t-tests for correlated means were computed. Twenty-seven out of the thirty t-tests showed acceptable levels of statistical significance (.05 or less). It was concluded that the results of CPI testing indicated a general personality change underway "apart from the amount of educational experience of the groups tested."[24] Similar conclusions were drawn for the AVL and D-scale tests.

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23 Plant and Telford, op. cit., 34.
24 Ibid., p.31.

Although this review of related research is brief, perhaps the point can be established that there is some value in attempting to discribe the status of entering freshmen with respect to college aptitude and values (in the comprehensive sense suggested by Jacob), and in attempting to measure provocative result of Plant and Telford's research is the suggestion that, although change seems to be greater among those who attend college, when compared with those who do not, the differences measured among groups completing varying amounts of college during two years is not statistically significant. If there is such a thing as "college impact," the term needs to be make more operational; it needs to be translated into hypotheses that can be tested in terms of curriculum, instructional practices, and the whole complexity of factors that may be included under the general heading of "college environment."

III. The Current Napa Junior College Study

The basic question to be answered by the research at Napa Junior College was one of the extent of diversity, and, in a smaller way, the extent of change among first-year students as measured by performance on the California Psychological Inventory. The basic design was selected as the second alternative from those outlined by Barton[1], according to whom studies of the effect of college upon personality fall into four major types: (a)after-only comparisons of exposed and unexposed persons, (b)before and after comparisons of exposed group only, (c)comparison of groups at different stages of exposure, and (d)before and after comparisons of exposed and unexposed persons. Because the primary emphasis of the research was to be descriptive, and because of the difficulty of drawing a representative sample of students who planned to continue in college but failed to enroll, as the design of Plant and Telford included, it was decided that the study should concentrate on a selected population of Napa Junior College students representing the high, middle, and low ability groups on the campus. The sample was limited because of two factors: (1) the fact that the total entering freshman class was not larger than 600 students, and (2) the fact that grouping by ability to achieve a sufficiently large sample to be representative precluded that possibility of achieving sexual balance in the groups represented. The sample was chosen initially on the basis of performance on the STEP Reading Examination, Form 1A, with cut-off scores set to differentiate three levels of ability. Specifically,

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[1] A.H. Barton, Studying the Effects of College Education (New Haven: The Hazen Foundation, 1959)

the selection of the low-ability group was based on a STEP Reading score of 290 or below, (10-22 %ile, National Norms, Grade 13); the middle-ability group was chosen by a score of 307 (34-59 %ile); the high ability group was selected by a score of 322 or above (74-95th %ile). The resulting group was composed of approximately 150 students, who were invited to participate as volunteers in the experimental project. No details were given concerning the nature of the project or the information being sought through the testing program. Approximately 100 students responded to the invitation to participate, and appeared for initial testing in September, 1966.

Several instruments were chosen to test specific hypotheses about the student population at Napa Junior College. Following the design and instrumentation set by Plant and Telford was not entirely possible, but it was decided that the California Psychological Inventory would be an adequate instrument to assess personality, with specific attention to the scales chosen by Plant and Telford; these scales were the Sociability (Sy), Self-Control (Sc), Achievement via Independence (Ai), Intellectual Efficiency (Ie), and Responsibility (Re) scales. After some investigation of factor analytic studies, and some related research by Holland,[2] Maxwell,[3] Kelly[4] Brown[5] and Fink[6] these scales were chosen, and in addition, the Flexibility (Fx) and Well-Being (Wb) scales were included.

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[2]J. L. Holland, "The Prediction of College Grades from the California Psychological Inventory and the Scholastic Aptitude Test," Journal of Educational Psychology (50:1959, p. 135-142)

[3]Martha Maxwell, "An analysis of the California Psychological Inventory and the American Council on Education Psychological tests as Predictors of Success in Different College Curricula" American Psychologist (15:1960, o. 425.

[4]E. Lowell Kelly "The CPI" in O.K. Buros, ed., Sixth Mental Measurements Yearbook (New Jersey: The Cryphon Press, 1965, p. 71-72.

In general, the studies seemed to emphasize that achievement may function as an aspect of socialization, as measured by Gough's scale, and that groups of students could be differentiated according to their performance on the CPI. There seemed to be some indication that personality variables might be related to ability, achievement in college, and measured intelligence on a variety of specific instruments.

The description of the scales is provided by Gough in the Manual for the CPI. Briefly, the descriptions he provides are as follows:

> Sociability (Sy): To identify persons of outgoing, sociable, participative temperament.
>
> Well Being (Wb): To identify persons who minimize their worries and complaints, and who are relatively free from self-doubt and disillusionment.
>
> Responsibility (Re): To identify persons of conscientious, responsible, and dependable disposition and temperament.
>
> Self-Control (Sc): To assess the degree and adequacy of self-regulation and self-control and freedom from impulsiveness and self-centerendness.
>
> Achievement through Independence (Ai): To identify those factors of interest and motivation which facilitate achievement in any setting where autonomy and independence are positive behaviors.
>
> Intellectual Efficiency (Ie): To indicate the degree of personal and intellectual efficiency which the individual has attained.
>
> Flexibility (Fx): To indicate the degree of flexibility and adaptability of a person's thinking and social behavior.[7]

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[5]Donald R. Brown and Denise Bystern, "College Environment, Personality, and Social Ideology of Three Ethnic Groups," Journal of Social Psychology (44:1956, p. 279-288).

[6]M.B. Fink, Self-Concept as it Relates to Academic Underachievement (Unpublished doctoral dissertation, University of California, Berkeley, 1961)

[7]Harrison G. Gough, Manual for the California Psychological Inventory Palo Alto: Consulting Psychologists Prsss, 1964), pp. 10-11.

As a measure of the level of authoritarianism of the student population, the Autonomy scale from the omnibus Personality Inventory was used, with the kind permission of Dr. Paul Heist and the Center for Research and Development in Higher Education. In a description of this scale, Trent made the point that "it depicts the extent to which a person can think independently and objectively without reliance upon stereotyping or unquestioning dependence upon a super authority."[8] In a conclusion from a study of student change, Trent concluded that "autonomy, perhaps more than any other trait, distinguishes the college completer form the dropout, and the dropout, in turn, from the bright non-attender, particularly in the case of women."[9] In seeking to find an instrument which would measure the factor identified by Sanford and others as characteristic of the entering freshman, the Autonomy scale seemed to answer the need well.

The Study of Values, by Allport, Vernon, and Lindzey (AVL) is an instrument that has been used in virtually all of the research reviewed in the earlier section of this paper. The scale yields six scores which indicate the relative prominence of basic interests or motives, "values" for the individual. Ipsatively scored, the instrument yields a correspondingly low score for each elevated score, and vice versa. The resulting profile indicated relative strength of each of six motives in the individual: Theoretical, Economic, Aesthetic, Social, Political, and Religious. As well as the earlier studies which have been cited above, more recent studies at the Center for the Study of

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8 James W. Trent, "Non-Cognitive Factors Associated with Varying College Experiences," (Berkeley: Center for the Study of Higher Education, 1964 -mimeo'd), p.10.

9 Ibid.

Higher Education has indicated a close relationship between performance on the Theoretical and Aesthetic scales and intrinsic intellectual interests.[10] The instrument has been used to assess differences and value-orientation among high ability students, and has been found useful in identifying highly productive schools, as well as potential scholars.[11] In general, the Allport, Vernon, Lindzey Study of Values is a thoroughly recognized and respectable instrument for the kind of descriptive measurement being attempted at Napa Junior College.

Finally, to verify the level of ability initially identified by performance on the STEP Reading Examination, the ACE Psychological Examination, consisting of a battery of tests designed to measure both Verbal and Quantitative ability, was selected. The instrument was chosen on the basis of several factors: (1) it had been used by Darley, Medsker, and others, and would provide a meaningful compraison of students on the basis of the results of these findings; (2) no other instrument was being used as an initial placement battery of tests, with the exception of the STEP Reading Exam, which was used for English Placement only; (3) the instrument was available at the College.

At the time of this writing, the participating group of students has been tested and re-tested, the second battery having been administered on May 22. Available data to this date does not represent a complete picture, but will allow for some commentary to be made on the significant differences for scales of the California Personality Inventory, as well as the Autonomy Scale of the OPI. The ACE Psychological examination

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10 D.W. MacKinnon in "Selection and Educational Differentiation" Proceedings of a Conference on Selection and Educational Differentiation (Berkeley, California, 1960)

11 vide, Paul Heist, T.R. McConnell, Frank Matsler and Phoebe Williams "Personality and Scholarship" Science (133:3450) pp. 362-367.

was not administered in the Spring battery of tests, since its purpose was to verify the "purity" of groups which had been selected originally. The Allport-Vernon-Lindzey Study of Values was administered, but the differences were not statistically significant from the first testing. Briefly, the available data will allow a discussion of several hypotheses. Stated in null hypothesis form, these hypotheses might include:

1. That there is no statistically significant difference in the mean scores on selected scales of the California Psychological Inventory among groups of students identified as "high" and "low" ability.

2. That there is no statistically significant difference between mean scores on the Autonomy scale of the OPI among students who have been identified as "high" and "low" ability.

3. That there is no significant difference in the mean scores on scales of the AVL Study of Values among students at Napa Junior College.

4. That there is no statistically significant difference in mean scores on the two testing periods for groups taking the CPI at Napa Junior College (Sept-May).

5. That there is no statistically significant difference in mean scores on the Au scale of the OPI for groups being tested and re-tested at Napa Junior College (Sept-May).

6. That there is no statistically significant difference in the performance of low ability students taking the STEP Rd examination test and re-test at Napa Junior College.

The list of hypotheses is not exhaustive of the data, but represent what can be tested empirically from available information as of May29, 1967, the date of this writing.

Data presented on tables included in the following pages will illustrate the relevance of the data to each of the stated hypotheses.

Table 1: Mean Scores and Standard Deviations
High, Middle, and Low Ability Students at

Napa Jujior College. ACE Psychological Exam

Total Score - 1952 Norms

Group	N	Mean Score	S.D.
Low	30	70.67*	13.43
Middle	30	105.77**	16.80
High	30	126.89***	16.98

*13th percentile, 42,332 students in 269 schools
**52nd percentile, 42,332 students in 269 schools
***81st percentile, 42,332 students in 269 schools

Table 1 illustrates the diversity of ability among students attending Napa Junior College, as measured by the ACE Psychological Examination, and verifies the levels of ability that were tentatively identified using the STEP Rd examination only. The mean scores reported are ACE Total scores, and the comparisons are made with national norms reported in the 1953 Norms Bulletin, ACE. While the national norm sample represents 42,332 students enrolled in 1952, thus calling for caution in the interpretation of the meaning of results in 1967, the basic differentiation of high, middle, and low ability groups is indicated as having been accomplished. The diversity of ability at Napa Junior College extends across a range of 67 percentile points for the national sample, and the group identified as "Mid" ability compares very favorably with the "middle" percentile range of the national sample. The fact the Napa Junior College has just begun to require the ACT test for placement at entry, effective in September, 1967, will mean that later descriptions of student abilities may be more in line with recent descriptive data. Accepting the scores at face value, and assuming the representativeness of the sample, it may be concluded that the "typical" Napa Junior College freshman compares favorably with his four-year counterpart, and that there are distinct ability groups entering Napa Junior College.

Having satisfied the requirement of identifying distinct groups of students according to ability, we may turn to the first hypothesis: that there is no statistically significant difference in the mean scores on selected scales of the CPI among groups of students identified as "high" & "low" ability.

Table 2

Comparison of Mean Scores and Standard Deviations - Selected Scales California Psychological Inventory

Scale	Gough High School N=3572 X	s.d.	Gough College N= (-) X	s.d.	Napa Low Ability N= (-) X	s.d.	N	Napa Mid Ability N= (-) X	s.d.	N	Napa High Ability N= (-) X	s.d.	N
Sociability	36.3	6.0	36.8	5.2	36.6	2.3	(25)	36.8	6.1	(23)	36.9	6.0	(32)
Well-Being	33.5	5.6	36.6	4.6	33.0	7.5	(18)	32.4	6.1	(23)	34.5	12.4	(29)
Responsibility	26.7	5.7	30.8	4.5	26.7	.45	(25)	27.1	1.5	(24)	32.7	.43	(32)
Self-Control	25.3	8.0	27.6	7.5	27.4	8.5	(18)	21.2	8.6	(23)	27.8	8.0	(29)
Achievement-Independence	14.6	4.1	20.9	4.2	12.4	1.8	(25)	27.1	1.1	(23)	22.8	1.7	(32)
Intellectual-Efficiency	33.6	6.3	39.8	5.0	31.8	5.6	(18)	32.7	1.6	(24)	41.4	5.3	(29)
Flexibility	9.1	3.4	11.1	3.8	7.2	.43	(25)	7.8	1.3	(24)	12.1	.34	(32)

As an indication of the general pattern of performance on the selected scales from the CPI, Table 2 illustrates a comparison of mean scores and standard deviations for each of the three ability groups at Napa Junior College with means and standard deviations for high school and college samples. Several interesting comparisons seem to be indicated in this table. On the Wb scale, both the Low and Mid ability groups at Napa Junior College are below the mean score for high school samples reported by Gough. The High ability group at Napa Junior College is below the mean score reported by Gough for college students. On the Responsibility, Self-Control, Achievement via Independence, Intellectual Efficiency and Flexibility, Napa Low ability Students are quite consistently at or below the mean score for Gough's high school sample, while Napa High ability students are consistently above the mean score reported by Gough for college students. Now, none of these comparisons is statistically significant; the general comment being made here is meant only to be suggestive of the possibility that there <u>are</u> statistically significant differences in personality that characterize students of different ability groups.

This suggestion is the substance of the first hypothesis, and the empirical data relevant to the question is presented in Table 3. On the Fx, Ai, Ie, Re, and Au scales, the differences in mean scores are represented as having statistical significance at the .005 level. Again, the differences must be interpreted as significantly differenct, thus causing us to reject the first hypothesis, as stated in null-hypothesis form. The difference indicated must be taken as suggestive of quite important correlates between personality and scholarship, but caution must be urged in interpreting what is an obvious directional difference in scores the same way as one might interpre the verification of these suggested directions through methods of correlation. In this study, little suppprt was found for the assumption that performance on selected personality scales could be correlated very highly with academic aptitude or performance.

Table 3:

Napa High and Low Ability Students
Selected Mean Scores, Student's T
and P for CPI and Autonomy Scale (OPI)

Scale	XY low ability	X high ability	Student's T	P
Flexibility	7.2	12.1	9.67	.005
Achievement Independence	12.4	22.8	3.52	.005
Intellectual Efficiency	31.8	41.4	3.52	.005
Responsibility	26.7	32.7	3.52	.005
Autonomy (OPI)	18.1	32.5	6.28	.005

T

The most fruitful computations in this direction were with the Au scale and the Total score on the ACE: in the High ability group, the correlation was .23, and this was about the best coefficient of correlation that appeared between specific scales on the CPI, the Au scale of the OPI, and patterns of Ability or Achievement as measured by Grade Point Average or performance on the ACE. So, while the first hypothesis has to be rejected because of the high level of significante reported for the different means among High and Low ability students, it must be remembered that correlations between personality and performance remain very low and subject to much scrutiny. The same caution must be applied equally to the second hypothesis, concerning the significance of differences on the Au scale of the OPI, which must be rejected according to the data in Table 3: a tendency does not indicate a correlation between personality and performance.

Hypothesis 3 concerns the significance of differences in the performance of Napa Junior College students and other college students on the AVL Study of Values. Again, the data presented in Table 4 must be taken as suggesting a tendency to difference, reather than a correlation between values and ability. Several important bits of data appear in the comparison of Napa Junior College freshmen with 3778 other college students. On the Theoretical scale, Napa Junior College freshmen are <u>all</u> seen to fall below the norm group for college students. The Middle ability group at Napa Junior College, interestingly enough, is the least theoretically oriented, with a mean score falling 1.02 standard deviations below the college norm group. Even the High ability group falls .33 standard deviations below the college sample. Economic orientation is revealed as .31 standard deviations above the college sample for the Napa Low group, and .40 below for Napa High ability students. While all of the sample group at Napa Junior College fell below the mean for the college sample on Aesthetic orientation, the Middle ability group was especially low, falling .73 standard deviations below the college norm. Social orientation was especially characteristic of the Napa Junior College student, with the

Table 4: Comparison of Mean Scores For Selected Groups of Napa Junior College Freshemen with 3778 College Students - AVL Study of Values

Group	High	Mid	Low	3778 College Student (1)	
Scale	(N 29)	(N 18)	(N 14)		S.D.
Theoret.	37.31	32.22	37.121	39.75	7.27
Economic	37.26	41.83	42.64	40.33	7.67
Aesthetic	37.90	32.67	36.57	38.88	8.42
Social	41.93	41.83	41.64	39.57	7.03
Political	32.86	37.17	37.14	40.39	6.44
Religious	46.69	47.39	42.00	41.01	9.31

[1]Gordon W. Allport, Philip E. Vernon, and Gardner Lindzey, Manual: Study of Values (Cambridge: The Riverside Press, 1960), p. 12.

Table 5: Mean Differences in Scores on Selected Scales of the California Psychological Inventory and the Autonomy Scale of the Omnibus Personality Inventory - Testing at Beginning and End of Year.

Scale / Group	Sy	Wb	Re	Sc	Ai	Ie	Fx
Low	2.333	1.250	.083	-.666	2.000	1.500	1.833***
Mid	.933	-.563	1.312	1.937	3.133*	3.000**	1.812***
High	.913**	-.609	-.913	-.870	1.522*	1.043	-.087
All	1.166	-.259	-.796	.148	2.166*	1.963	.297*

* $p < .05$
** $p < .005$
*** $p < .025$

Au	Scale	(OPI)	
Low	.357	t .29	N.S.
Mid	1.98	t 1.98	p<.10
High	1.65	t 1.65	p<.25

highest mean score .33 standard deviations above the college sample. Political Orientation in Napa Junior College students is generally depressed, with the lowest group falling 1.06 standard deviations below the mean. Religious orientation is characteristically higher for Napa Junior College students, with a high of .68 above the college mean.

All of these directions and comparisons are provocative, and tend to verify the impression that junior college students are less Theoretical and Aesthetic in their orientation. Recalling the suggestion that elevation in these two variables seems to be correlated to some degree with an intellectual disposition, one can easily come to the conclusion that, even among highly able students at Napa Junior College, the likelihood of intellectual disposition is not particularly strong: where one might like to find elevated scores on the Theoretical and Aesthetic Orientations, the pattern falls below the sample of college students in other institutions. The third hypothesis, then, remains something of a problem. While differences may seem "signigicant" in some relative way, a complete analysis of the data has not yet been completed. More adequately stated, the hypotheses should test the statistical significance of difference among Napa Junior College groups and other college students.

Hypothesis 4 deals with the significance of change among the students tested with CPI scales, and Hypothesis 5 deals with significance of difference of difference among students tested on the Au scale of the OPI. According to the findings reviewed and cited earlier, one might expect some level of significance for changed mean scores at the beginning and end of the first year of college. Table 5 presents relevant data on this question for both the CPI and Au scales. In Table 5, the mean difference scores for each group, and for the entire group of subjects at Napa Junior College are presented. Of special importance are the changes in Intellectual Efficiency and Flexibility for the Napa Junior College students. If college can be said to assist in the process of change, and even if the college is seen as a facilitating agency rather than a uniquely causative agency in the process of change, as Plant

and Telford wisely suggest, then significant changes in Intellectual Efficiency and Flexibility might be expected to appear at the end of some period in the college experience. Whether such changes would appear without some college experience, or whether the changes would be greater with college than without is not the subject of this investigation: The design (b) suggested by Barton was the model for this study.

Evidence in Table 5 seems clearly to support change at a statistically significant level on several variables of the CPI. Clearly, Low and Mid ability students made significant gains in Flesibility; Mid and High ability students made signigicant gains in Intellectual Efficiency; High ability students changed significantly in measured sense of Well-Being; the whole sample population scored significantly higher both in Intellectual Efficiency and in Flexibility. Insofar as these scales have empirical validity and are translated into modes of behavior, it would seem that one year of college experience at Napa Junior College has an impact on the behavior of students. Thus the Fourth Hypothesis must be rejected, as stated in the beginning of this section.

The data on change in measured performance on the Au scale of the OPI, however, verifies the hypothesis as stated in null form: in fact, there is no significant at an acceptable stitistical level. If the college has an impact, it is not reflected in this particular test, although one would think that an operational translation of the characteristic measured on this scale would also be lauded as an operational end of 'liberal education.' Insofar as this speculation has any value, one must conclude that change in this dimension is not facilitated significantly by the college experience at Napa Junior College.

Finally, turn to the Sixth Hypothesis. This Hypothesis should be expanded to include significant change among the measured performances of Mid and High ability students as well, but currently available data will allow only the limited hypothesis to be ~~tested~~ reported. Basically, the question of impact on ability. Although no Table has been drawn to illustrate relevant data, it is, basically, this: for the Low Ability group, the first Mean score (Sept)

was 272.67 (STEP RD.1A); for the second testing, the Mean score was 287.33. The t-test yielded a t-score of 5.65, significant at the .005 level. Thus, the Sixth Hypothesis has to be rejected: There are significant differences in performances among students tested and re-tested. Translating this level of performance into operational terms, however, the reality which confronts us is somewhat discouraging: compared with a norm sample of college freshmen and sophomores (Fall testing), the second mean score places the low ability group at the 5-11%ile for sophomores. Thus, if one function of the first year of college for low ability students is to provide an adequate remedial program to enable the student to continue in college, the result seems to indicate that, despite significant gains in performance, very little actual gain is made when the group is compared with a larger population.

For the six hypotheses stated, then, four must be rejected as stated in null-hypothesis form, and two are subject to some varied interpretation, as stated. Implications and a brief discussion of the results in a more general way will follow in a concluding commentary.

Discussion and Conclusion

The student characteristics of approximately 100 volunteer subjects at Napa Junior College weremeasured during their initial year of attendance as freshmen. The groups were identified according to Ability, as measured by the Step Reading Examination, and the ACE Psychological Examination. Significant differences in personality between high and low ability students were found, using the California Psychological Inventory as instruments. The values, as measured by the Allport, Vernon, Lindzey Study of Values, were compared for Napa Junior College students and a sample from colleges throughout the United States. Changes in personality and performance were tested for the three groups of Napa Junior College students, based on their performance in September and in May of the academic year. Of six specifically stated hypothesis on student characteristics, stated in null-hypothesis form, four were rejected, and two were open for interpretation and scrutiny. Generally, the findings allow us to describe Napa Junior College students in the following way: (1) they are comparable to the entering freshman at other institutions of higher education, as reflected in performance by all subjects on the ACE exam and STEP Rd. exam; (2) There is great diversity within the institution, extending over a range of 67 percentile points on the ACE examination; (3) there is a great diversity of performance on CPI and Au scales among the different ability groups in the College; (4) there are significant changes in personality, as measured by the CPI and Au scale, at the end of the first year of college, when mean scores are compared with initial tests at the beginning of the academic year; (5) there are significant changes in performance on the STEP Rd. Exam among low ability students.

The current study is conceived to be the beginning of a more intensive evaluation of the student characteristics at Napa Junior College. The importance of evaluating non-cognitive changes which occur during the college years cannot be over-estimated, in the opinion of this author: what is called for

is a new emphasis on research design so that the "impact" question can be solved by establishing a more adequate definition of the term, and so that more adequate hypotheses can be devised for testing the relationship between college attendence and personality change. Although such non-cognitive variables seem not to have predictive validity for college performance, they are, nonetheless, central to the process of education. As Fishman has states:

> If we cannot put such factors into our predictive equations, then we must expect that (a) they will tend to operate so as to upset our predictions in one direction or another and that (b) we can cope with them only via studies of guidance and counseling services on the post-admission scene. . . We may, appropriately, appreciate the fact that the very core of the college experience and the very heart of a college's responsibilities revolve about these non-intellective factors. . .which must remain contingencies when considered from the point of view of prediction and selection. 1.

And D. R. Brown remarks:

> With. . .an understanding of the interaction of personality, achievement, and environment, we could well consider the active manipulation of our educational environment in order to maximize the potential of each student within the limits set by our desired goals. 2.

It is hoped that, through such studies as this, the planning of curriculum, counseling and guidance, and instructional practices at Napa Junior College can be made on the basis of some understanding of the nature of the student whom the College exists to serve.

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[1]J. Fishman "Non-intellective Factors as Predictors, as Criteria and as Contingencies in Selection and Guidance." Selection and Educational Differentiation (Berkeley, 1959), p. 70.

[2]D. R. Brown in a Symposium on Social Change and the College Student (Washington, D.C.; American Council on Education, 1960), p. 30.

Appendix To
Student Change at Napa Junior College: Three
Individual Case Studies

Cast I: Low Ability Female "CS"

This young woman, a graduate of Napa Senior High School in 1965, achieved at the following level on the ACE Psychological Examination: Quant. = 23, Lang. = 40 Total = 63. Since the Mean score for the low ability group was 70.67, a score which placed the group at the 13th per centile for a national sample of 42,332 students in 269 schools, it is clear that this student's ability is extremely low, and the prediction one might make of chances for success in college would not ordinarily be encouraging.

The High School Curriculum followed by this young woman was Business, and she graduated with a rank of 473 in a class of 924. Her High School Grade Point Average was 2.23, or C plus.

Her I.Q., as measured by the Herman-Nelson in Spring, 1964, was 93. Generally speaking, the pattern of ability and interest might be considered typical of a student in the lowest third of ability compared with other college students.

In her freshman year at Napa Junior College, this student was administered several tests other than those taken by the experimental project group. On the Kuder Personal Preference Test, she showed a pattern of low interest (below the 20th percentile) in Outdoor, Mechanical, Computational occupations, and a pattern of high interest (above the 70th percentile) in Persuasive and Social Service Occupations. The choice of a major in Distributive Education seems to have been consistent with the high 'persuasive' score, although the low scores in Computational and Mechanical interests may prove to be relevant as she pursues the program.

Her Grade Point Average for the Fall Semester, 1966 at Napa Junior College was 1.52. During the Fall semester, this student became more interested in the D.E. program, and joined in extra-curricular activities with the DECA organization, a social and service organization on the campus. At this same time, she began to consult with her counselor about some rather "severe" family problems which she seemed to be experiencing at home. Much discussion was devoted in the counseling sessions to the transactional analysis techniques popularized by Berne in Games People Play, a source which was recommended to this student by her counselor. In the Spring semester, she became much more active in the DECA organization, attending local, regional, state and other conventions. By the end of her first year, she seemed to display much more confidence in herself, in her abilities, in her social relationships, and in her personal adjustment. Her confidence and achievement in the personal and social areas was reflected in her academic performance as well, since she achieved a 2.44 Grade Point Average for the Spring semester, 1967.

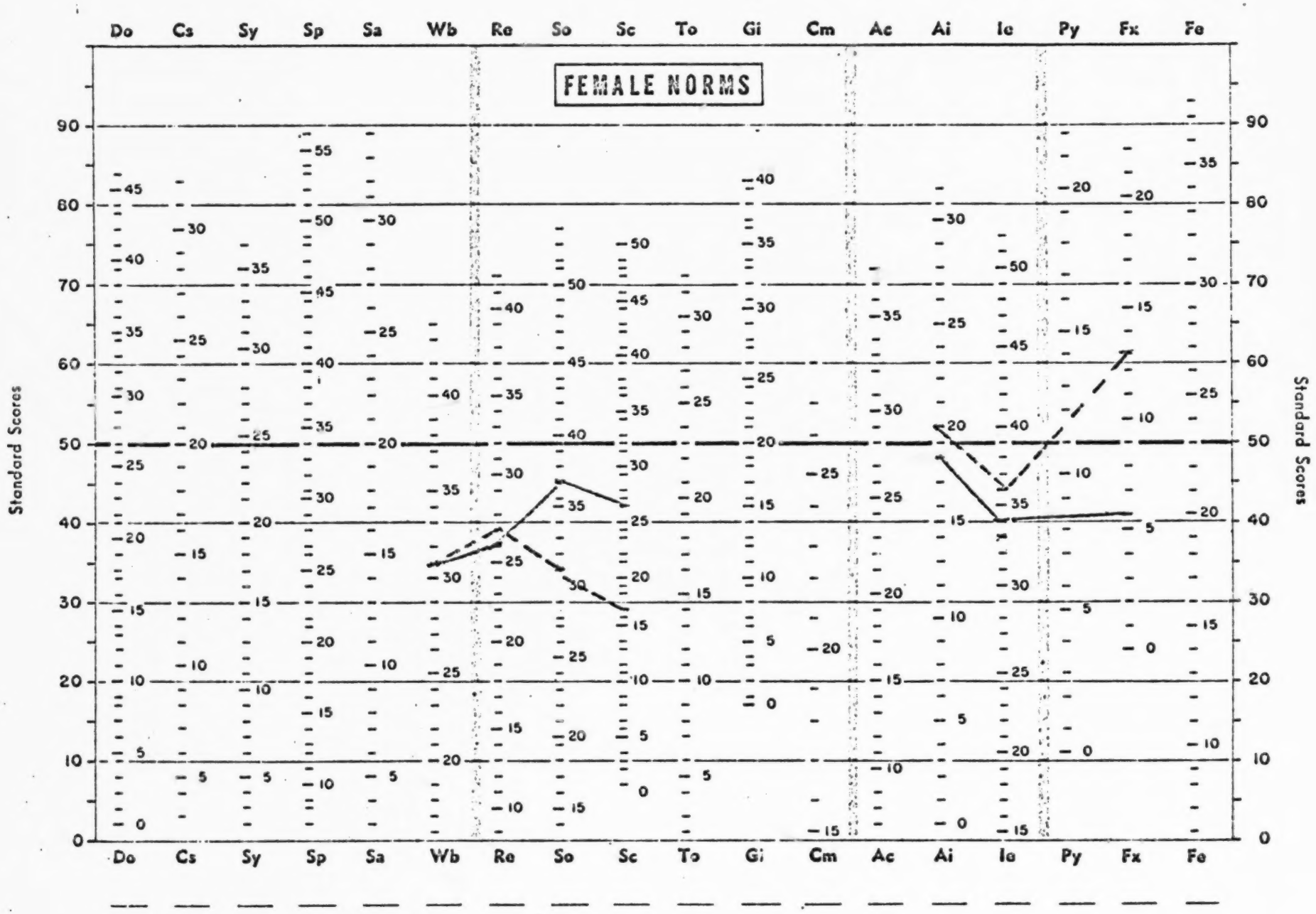
Of particular interest is the information presented on the table which is presented on the next page, a profile sheet for the California Psychological Inventory, showing the pattern of change in the personality of this young woman. Generally speaking, the greater the distance the score on any scale lies from the middle of the page, the more "interesting" is the score, in the sense that the greater distance indicates a greater deviation from the "typical" performance of others taking the same test.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name CS Age 18-19 Date Tested

Other Information Au Sept - 17 May - 33 diff = 16 (Diff Low group = .357)

Notes:



Female Norms

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The first three scores represented, Well Being, Responsibility, and Self Control have some interest, especially the pattern of great change exhibited in the Self-Control scale. Significantly, the student showed a score of 17 in May, as compared with 26 in September on the Self-Control scale. Inferences may be drawn about the meaning of this change in the behavior of the student as follows: the lower scale score in May may indicate a greater tendency to self-expression of emotions, a greater freedom of feelings, either of anger or of affection. The student had discussed with the Counselor the fact that she had suffered with ulcers, and felt enormously restricted in her emotional expressions, particularly in her family, and in her relationship with her sister. The change in the direction of less self-control may indicate a temporary swing in the direction of greater emotional indulgence as the student attempts to work through her personal concerns. The fact that the score is more than two standard scores away from the center (50) indicates that there may be some cause for concern: one would expect the score to move to the center as the adjustment becomes satisfactory for this student in her family and inter-personal relationships. Continued contact with the Counselor seems to be indicated as this process continues.

The pattern exhibited in the second set of scores (Achievement via Independence, Intellectual Efficiency, Flexibility) is typical of the change of all students in the experimental project. In general, students tended to gain in Ai, Ie and Fx scores, thus possibly indicating a greater ability to cope with the demands of college. Of particular interest is the great change in Flexibility indicated by this student. This change may be compared with the change on the Autonomy Scale of the CPI, on which this student gained 16 points in the direction of greater autonomy, and independence, tolerance of divergent views. This student, as a matter of fact, exhibited the greatest amount of change on the Autonomy Scale among the low ability students. Another point of interest is that the three scores relating to achievement and intellectual performance all lie near or above the standard score of 50, in contrast to what one might expect for a student whose measured ability is so low.

To summarize, this student's scores, and changes, and achievement as measured by GPA, indicate the necessity for evaluating the personality factors that are associated with the ability, as measured by the ACE in this study. The student here viewed is achieving beyond what would have been expected from ability scores alone, but the changes in Autonomy and the three "intellectual" factors on the CPI, as well as the fact that the student's scores at the beginning of the year were not widely divergent from the standard score of 50 on the intellectual factors, makes her performance less of a surprise. The picture is of a student experiencing some genuine and significant re-orientations of thought, value and behavior while at the same time maintaining adequate performance in college.

Case II: Mid-ability female "AV"

Miss "AV" is a graduate of Napa Senior High School, with a GPA of 2.185. She was ranked 495 in a class of 924, and followed the Home Economics Curriculum. Her scores on the ACE were: Quant. = 35, Lang. = 60, Total = 95, a performance which placed her on the 51st percentile compared with a national sample of Junior College females.

Her I.Q., as measured by the CTMM in 1961, was 103. Although her measured ability seems to be typical of the middle ability student, it is noteworthy that this student graduated with a lower rank in class than the low ability student whom we have just discussed. Also, her pattern of performance in academic classes at the high school level was not high: she had D grades in American Government, history, Biology, Algebra, C grades in English, and B grades in Spanish, a language with which she is intimately familiar, it being spoken in her home.

In her freshman year at Napa Junior College, this student was administered several tests other than those taken by the experimental project group. On the Kuder Personal Preference scales, she showed very low interest patterns (below the 20th percentile) in Outdoor, Scientific, and Persuasive occupations, and very high interest (above the 70th percentile) in Artistic, Literary, and Social Service occupations. Her choice of a major in Early Childhood Education seems consistent with her high school emphasis and her high interest patterns in Social Service occupations.

Her GPA for Fall, 1966 at Napa Junior College was 1.77, not surprisingly so, considering her academic performance in high school, and her rank in the high school class. During the late Fall, and continuing throughout the remainder of the year, this student seemed to take more and more interest in the non-conformist subcultures on the campus, particularly since she came to question the value patterns she had learned from her second-generation Mexican-American family. In her own family, she felt, the identification of values with "the old ways" (often reinforced by the fact that there is a substantial Mexican-American population in the valley) was becoming difficult for her to accept. By the end of her first year, the identification with sub cultures in and out of the college, including several strong attachments with young men, and several experimental uses of drugs, had been reflected in academic performance as well as personality. Her GPA for Spring, 1967 was 1.45.

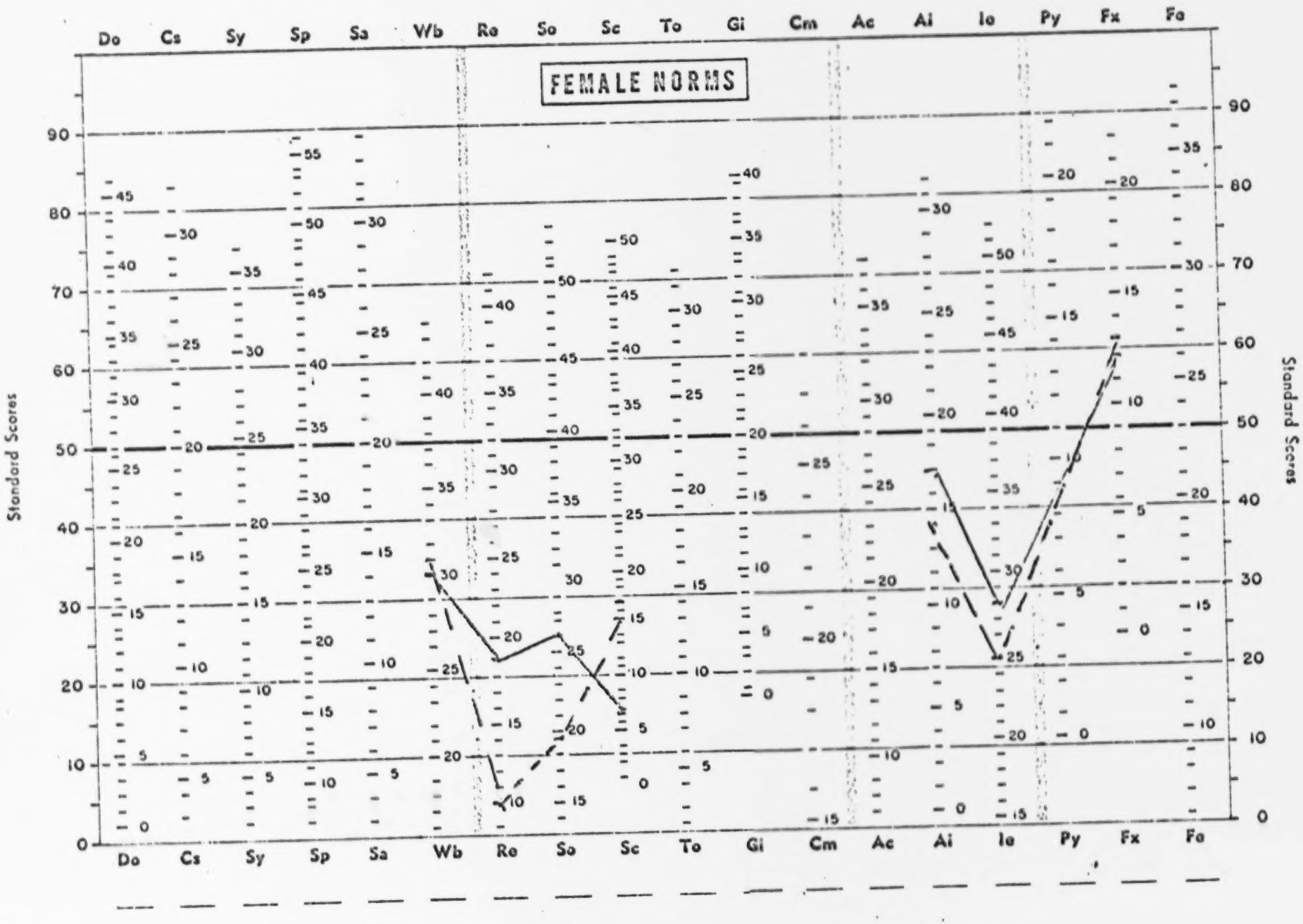
The changes in the personality of this young woman were unique among the mid-ability students. She showed great change on the Autonomy scale of the OPI, increasing 11 points in the direction of independence, tolerance and flexibility of thought. Of particular interest, however, is the reflection of her personality changes in the CPI scores presented on the following page. Notice in particular that the Responsibility scale, which was divergent from the center to begin with, ended in May by being more than four standard scores away from the center. Apparently, the combination of reaction against the parental culture and authority, along with a pattern of indulgence of newly asserted freedom and association, became manifest in an almost total rejection of a sense of academic obligation.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name AV Age 17-18 Date Tested

Other Information Av Sept. - 27 May - 38 diff = 11 (x diff. mid group = 1.98)

Notes:


FEMALE NORMS
Do Cs Sy Sp Sa Wb Re So Sc To Gi Cm Ac Ai Io Py Fx Fo
Standard Scores
90 80 70 60 50 40 30 20 10 0
May Testing
Sept Testing

Female Norms

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In this case, the great change in personality, which may have been facilitated by the college experience, brought a rejection, rather than an assertion of academic performance. It is interesting to contrast this pattern of change with that of the low-ability student whose profile has been presented above. In the case of the Low Ability girl, there was definite change in the direction of greater Intellectual Efficiency, Achievement via Independence, and Flexibility. In this case, the pattern is virtually reversed. It is interesting that in both cases, there were great changes in the Autonomy scale performance: in one case the new and significant personality adjustment manifested itself in increased academic performance and capacity. In the other case, the pattern worked in the opposite direction. In both cases, however, there were strong identifications with subcultures outside the home environment which helped to support and create new patterns of behavior.

This particular case seems to illustrate that the college may not be able to control the direction or specific manifestations of the very changes which seem to be facilitated and nurtured by the college experience. This is certainly no alarming discovery, and it is probably little more than an obvious truism to those who have considered the question. Nonetheless, the major research of which this specific description is only a part, seems to verify the fact that certain changes in personality seem to occur during the time of one year of attendance at a junior college. This case seems to illustrate that "extra-curricular", or at least "co-curricular" influences may have an even stronger effect in this process than the more ordered design of course patterns and faculty contact with students. In effect, the sub-culture with which the student identifies on the campus may be more "educative" than one might have thought.

Case III: High Ability female "UL"

This young woman is a 23 year old, married person who entered Napa Junior College after several years of being absent from schools. She is chosen as an individual case study because she exhibited the greatest change among the high ability students on the Autonomy Scale of the OPI. Her score increased by 9 points in the direction of greater autonomy and freedom of thoughts and reactions.

The student graduated from Montgomery High School in Santa Rosa, where she took Business courses, primarily. She maintained a fairly high academic record in College Prep subjects, achieving nearly a "B" average in this work. Her I.Q., as measured by the Ter-McN test of intelligence, was 125. On the ACE, her Total score of 132 placed her well above the average performance of the high ability group at 126.89, a score at the 81st percentile, compared on a national sample.

Her Grade Point Average for the Fall semester, 1966, was 2.66, and for Spring, 1967, 2.60. She completed 24 units in the course of the first year at Napa Junior College.

This subject was chosen as an individual case study because her pattern of change was exceptional among the high ability students. On the Autonomy Scale of the OPI, she increased 9 points in the direction of greater autonomy, independence and flexibility of thought. During the course of the year, interesting changes on the CPI scales were also evident, particularly in Achievement via Independence and Intellectual Efficiency. Although her original scores in September were high on the "intellectual" factors, the gains she made during the year placed her almost two standard scores above the middle of the comparison group. It is likely that, having been away from school for several years, the new intellectual stimulation of returning to college was an immediate stimulant, and her performance increased to what it had been before, or possibly beyond.

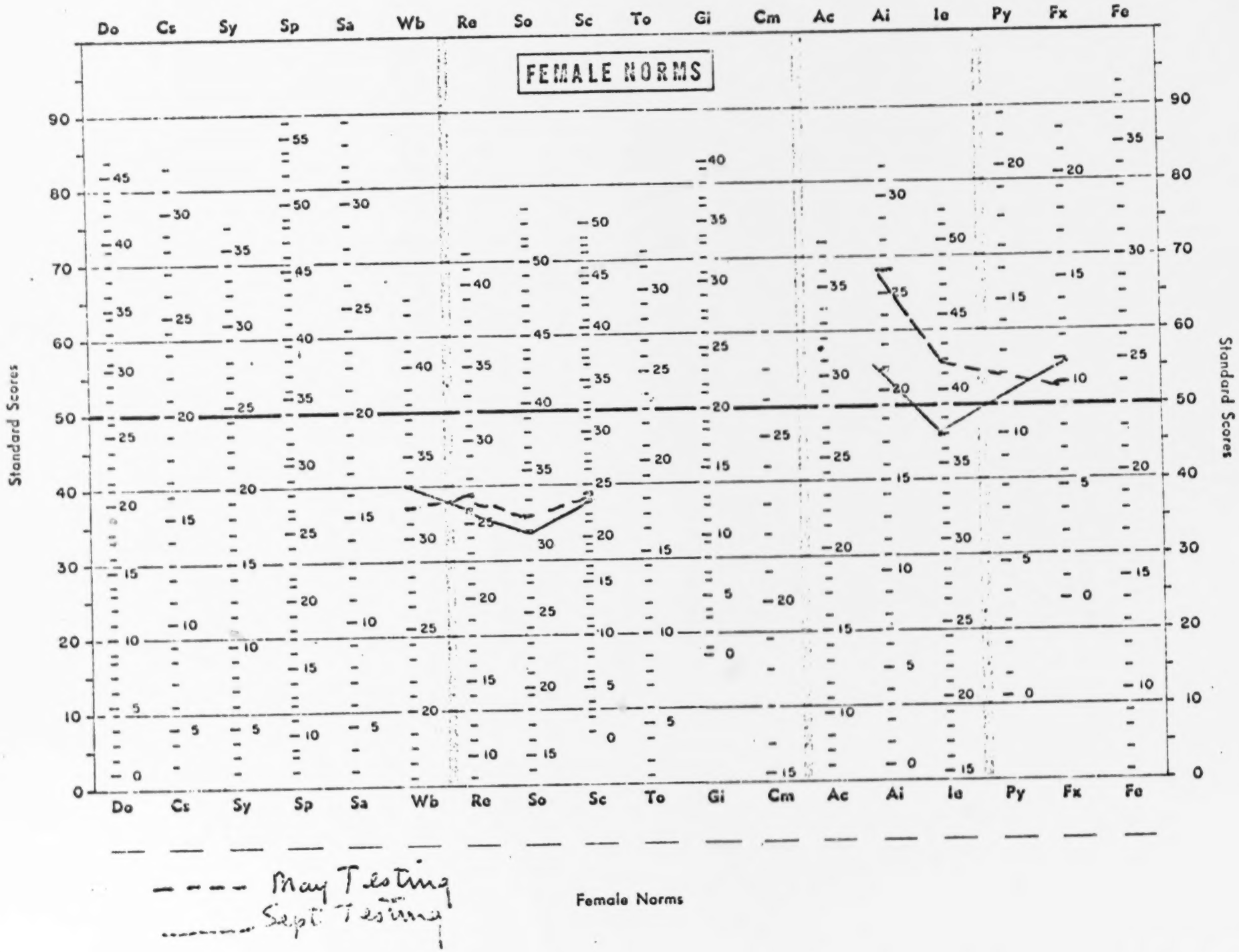
As with the other two individual cases presented here, this young woman found reinforcement for her values and behavior by contact with a sub culture outside the college, as well as in her classes and school contacts with faculty and counselors. In the late summer of 1966, this student's husband was briefly committed to Napa State Hospital, suffering from quite severe depression. The Hospital staff recommended group therapy for the husband and wife, and during the course of the school year, they both attended regular weekly sessions of group therapy. Again, one is forced to recognize that in patterns of exceptional change on certain personality variables, the influence of social and personal contacts away from or within the College is as great or greater than the influence of the formal patterns of education. While the College may act as a facilitating agency, providing time or place or opportunity to affiliate with new people or ideas, the direct influence of the College, conceived as a pattern of courses and contacts with teachers or counselors, is probably not as great as the staff would like to believe.

PROFILE SHEET FOR THE *California Psychological Inventory*: FEMALE

Name UL Age 23- Date Tested

Other Information Au Sept - 27 May 36 diff = 9 ($\bar{x}$ diff High group = 1.65)

Notes:


Do Cs Sy Sp Sa Wb Re So Sc To Gi Cm Ac Ai Ie Py Fx Fe
FEMALE NORMS
Standard Scores
90 80 70 60 50 40 30 20 10 0
May Testing
Sept Testing

Female Norms

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IV: General Comment on Case Studies

These three cases were chosen because they represent the student who showed exceptional change on the Autonomy Scale of the OPI. This change was also manifest in other scales, particularly on the California Psychological Inventory.

The cases illustrate, in the opinion of this writer, the value of supplementing standard aptitude or achievement tests for students on college entrance with certain tests of personality variables, such as those of the CPI and OPI. Although it is impossible to generalize, and it is true that the correlations between performance on any one given personality test and academic achievement are never very high, there is some value for the counselor to have an access to the personality of his counselees as soon as possible in the students' academic careers. Where extreme deviation from the "typical" pattern of performance is observed, the counselor may attempt to work with the student to discover the origin of this difference, and, where possible, determine whether the possibility of great change in the personality would have a positive, negative, or null effect on the student's academic performance.

As the case of the low ability student illustrates, great change may be accompanied by increased academic efficiency, as measured by GPA. The opposite is illustrated by the case of the middle ability student. In all three cases of exceptional change, however, the impact of Napa Junior College as an educational institution (or indeed of any school) may be called into severe question. It is more likely that the exceptional changes were taking place "in spite of" rather than "because of" the pattern of courses, student-faculty contact, student-counselor contact which the College presents. It is far more likely that the college environment, by providing an opportunity for students to encounter new sub-cultures, new groups with which to identify, facilitates change in much more unconscious and undirected ways than educators would like to believe.